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AUTHENTICATION OF A PATENT TRANSLATION

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I, Michael Landay, MA(Cantab), Member of the Institute of Translation and Interpreting of *Japanese Research Translations*, Edinburgh, Scotland, hereby declare that I am the translator of the above-noted patent application/publication and certify that my translation into English is accurate and faithful to the best of my knowledge and belief.

Signature of translator M. Landay Date 12/5/05

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Translation of Kokai Publication of Japanese Patent Application

PDP UNIT MOUNTING STRUCTURE

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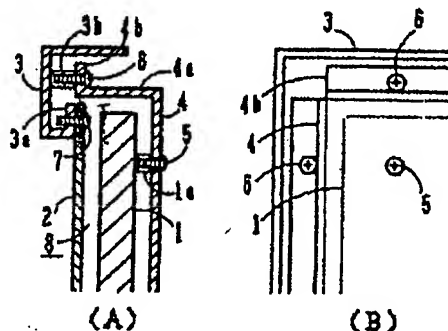
Abstract

Task

To provide a PDP unit mounting structure which has fewer components and which, because positional adjustment during mounting is not required, enables a PDP unit to be mounted more easily.

Solution

Boss 1a provided on the back of PDP unit 1 is fixed to plate 4 by means of screw 5. A peripheral portion of plate 4 is bent at approximately a right angle to the face of plate 4 to provide bent portion 4a, and the end portion of this is again bent to provide screwing portion 4b which is approximately parallel to the face of the plate. Screwing portion 4b is fixed by means of screw 6 to boss 3b projecting from the inside of front frame 3. A screw hole is provided in a peripheral portion of optical filter 2 made of translucent acrylic or the like, and [this peripheral portion] [1]^{*} is screwed to bent portion 3a inside the front frame.



* Numbers in square brackets refer to Translator's Notes appended to the translation.

Claims

1. A PDP (plasma display panel) unit mounting structure characterised in that, in a PDP display apparatus constituted so that a PDP unit and an optical filter mounted in front of said PDP unit are housed in a casing consisting of a front frame and a rear plate:

it provides: a plate having a hole [2] for screwing to a boss provided on the back of said PDP unit; a bent portion obtained by bending the periphery of said plate towards the side of the PDP unit at approximately a right angle to the face of the plate; and a screwing portion obtained by bending the end of said bent portion approximately parallel to said plate face;

the PDP unit is fixed in the casing by screwing said screwing portion to the inside of said front frame; and

said optical filter is fixed by, *inter alia* [3], screwing it to the front frame by means of a hole provided in a peripheral portion of said optical filter.

2. A PDP unit mounting structure characterised in that, in a PDP display apparatus constituted so that a PDP unit and an optical filter mounted in front of said PDP unit are housed in a casing consisting of a front frame and a rear plate:

[it provides] [4] a plate having a hole for screwing to a boss provided on the back of said PDP unit;

the PDP unit is fixed in the casing by extending the periphery of said plate beyond the periphery of said PDP unit, and by screwing said peripheral portion [5] to a boss projecting from the inside of said front frame and extending to said peripheral portion; and

said optical filter is fixed in the casing by, *inter alia*, screwing it to the front frame by means of a hole provided in the peripheral portion of the optical filter.

3. The PDP unit mounting structure recited in Claim 2, wherein the end of the peripheral portion which has been screwed to said boss is bent at approximately a right angle to said plate face.

4. The PDP unit mounting structure recited in Claim 1, Claim 2 or Claim 3, wherein a gap for circulation of air is provided between the optical filter and the front of the PDP unit.

5. The PDP unit mounting structure recited in Claim 4, wherein said gap is made approximately 10 mm.

6. The PDP unit mounting structure recited in Claim 1 or Claim 2, wherein the plate is made top-bottom and left-right symmetrical about its centre lines.

Detailed Description of the Invention

Field of industrial application

[0001] The present invention relates to PDP unit mounting structures which enable a PDP unit to be mounted more easily, and which are applicable to PDP display apparatus for displaying television pictures and the like.

Prior art

[0002] FIG. 3(A) is a side view (in section), and FIG. 3(B) is a rear view, of a corner portion of an example of a conventional PDP unit mounting structure. Boss 31a provided on the back of PDP unit 31 is fixed to plate 34 by screw 35, PDP unit 31 having had optical filter 32 fixed to its front by application of adhesive or the like to peripheral portions. Bent portion 34a which has been bent at approximately a right angle to the face of plate 34 is provided at a peripheral portion of plate 34, and is fixed by means of screw 37 to attachment fitting 36 which has been fixed to front frame 33. Attachment fitting 36 has been screwed, by means of screw 38, to boss 33a projecting from the inside of front frame 33. Screw hole 36a of the attachment fitting, this screw hole 36a being located in the portion where plate 34 is to be screwed to attachment fitting 36, has been made oval in shape, and when plate 34 -- to which the PDP unit has been attached -- is screwed to attachment fitting 36, adjustments are made so that the front of optical filter 32 corresponds with end portion 33b of front frame 33. Hence any errors in the thickness of the PDP unit can be absorbed by means of oval hole 36a, and a snug fitting can be achieved between optical filter 32 and front frame 33. However, a number of problems are encountered with this mounting structure. For example, a plurality of attachment fittings 36, 36, ... are required; the larger number of components means that mounting is more troublesome; and adjusting position when mounting the PDP unit is difficult.

Object of the invention

[0003] The present invention has been devised in the light of the problems mentioned above. It is an object of the invention to provide a PDP unit mounting structure which has fewer components and which, because positional adjustment during mounting is not required, enables a PDP unit to be mounted more easily.

Means for attaining object

[0004] There is provided (i) a plate having a hole for screwing to a boss provided on the back of a PDP unit, (ii) a bent portion obtained by bending the periphery of this plate towards the side of the PDP unit at approximately a right angle to the face of the plate, and (iii) a screwing portion obtained by bending the end of this bent portion approximately parallel to the face of the plate. The PDP unit is fixed in a casing by screwing the screwing portion to the inside of

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the aforementioned front frame. An optical filter is fixed by, *inter alia*, screwing it to the front frame by means of a hole provided in a peripheral portion.

[0005] [There is provided] [6] a plate having a hole for screwing to a boss provided on the back of a PDP unit. The periphery of this plate is extended beyond the periphery of the PDP unit, and is screwed to a boss projecting from the inside of the aforementioned front frame and extending to the aforementioned peripheral portion. [7] An optical filter is fixed by, *inter alia*, screwing it to the front frame by means of a hole provided in a peripheral portion.

[0006] The end of the peripheral portion which has been screwed to the boss is bent at approximately a right angle to the face of the plate.

[0007] A gap for circulation of air is provided between the optical filter and the front of the PDP unit. This gap is made approximately 10 mm.

[0008] The plate is made top-bottom and left-right symmetrical about its centre lines.

Working of the invention

[0009] By providing (i) a plate having a hole for screwing to a boss provided on the back of a PDP unit, (ii) a bent portion obtained by bending the periphery of this plate towards the side of the PDP unit at approximately a right angle to the face of the plate, and (iii) a screwing portion obtained by bending the end of this bent portion approximately parallel to the face of the plate; and by fixing the PDP unit in a casing by screwing the screwing portion to the inside of the front frame; and by fixing an optical filter by, *inter alia*, screwing it to the front frame by means of a hole provided in a peripheral portion, the attachment fitting of the PDP unit is integrated [8] and the number of components is decreased.

[0010] By [providing] [9] a plate having a hole for screwing to a boss provided on the back of a PDP unit; and by extending the periphery of this plate beyond the periphery of the PDP unit, and screwing this peripheral portion to a boss projecting from the inside of the aforementioned front frame and extending to the peripheral portion; and by fixing an optical filter by, *inter alia*, screwing it to the front frame by means of a hole provided in a peripheral portion, the structure of the attachment fitting is simplified. [10]

[0011] By bending the end of the peripheral portion, which is screwed to a boss, at approximately a right angle to the face of the plate, the planar mechanical strength of the attachment fitting portion is increased and hence plate thickness can be decreased. [11]

[0012] By providing a gap for circulation of air between the optical filter and the front of the PDP unit, heat generated by the plasma display panel can dissipate efficiently. Further, by

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making this gap approximately 10 mm, heat dissipation efficiency can be more or less optimised.

[0013] By making the plate top-bottom and left-right symmetrical about its centre lines, the top-bottom or left-right orientation of the PDP unit and the plate can be freely chosen. [12]

Embodiments

[0014] A detailed description of the PDP unit mounting structure of the present invention will now be given with reference to the drawings. FIG. 1(A) is a side view (in section), and FIG. 1(B) is a rear view, of a corner portion of a first embodiment of the PDP unit mounting structure according to the present invention. Boss 1a provided on the back of PDP unit 1 is fixed to plate 4 by means of screw 5. A peripheral portion of plate 4 is bent at approximately a right angle to the face of plate 4 to provide bent portion 4a, and the end of this is again bent to provide screwing portion 4b which is approximately parallel to the face of the plate. Screwing portion 4b is fixed by means of screw 6 to boss 3b projecting from the inside of front frame 3. A screw hole is provided in a peripheral portion of optical filter 2 made of translucent acrylic or the like, and [this peripheral portion] [13] is screwed to bent portion 3a inside the front frame.

[0015] By varying the length of bent portion 4a of plate 4 and the length of boss 1a on PDP unit 1, gap 8 between optical filter 2 and the front of PDP unit 1 can be appropriately adjusted, and can be made approximately 10 mm. By providing appropriately-sized gap 8, the air inside this gap moves, either by natural convection resulting from the rise in temperature due to the plasma display panel, or by means of a separately fitted heat dissipation fan (not illustrated), whereby generation of heat by the PDP can be effectively controlled.

[0016] By selecting suitable positions for screw holes, etc., plate 4 can easily be made top-bottom or left-right symmetrical.

[0017] FIG. 2(A) is a side view (in section), and FIG. 2(B) is a rear view, of a corner portion of another embodiment of the PDP unit mounting structure according to the present invention. Boss 21a provided on the back of PDP unit 21 is fixed to plate 24 by means of screw 25. A peripheral portion of plate 24 is bent at approximately a right angle to the face of plate 24 to provide bent portion 24a. The peripheral portion of plate 24 is fixed by means of screw 26 to boss 23b projecting from the inside of front frame 23 and extending to the peripheral portion. A screw hole is provided in a peripheral portion of optical filter 22 made of translucent acrylic or the like, and [this peripheral portion] [14] is screwed by screw 27 to bent portion 23a inside the front frame.

[0013] By varying the length of boss 23b projecting from the inside of front frame 23, and the length of boss 1a on the PDP unit, gap 28 between optical filter 22 and the front of PDP unit 21 can be appropriately adjusted, and can be made approximately 10 mm. By providing appropriately-sized gap 28, the air inside this gap moves as flow 28a, either by natural convection resulting from the rise in temperature due to the plasma display panel, or by means of separately fitted heat dissipation fan 29, whereby generation of heat by the PDP can be effectively controlled. In this case, bent portion 24a of plate 24 is extended until it engages against side 23b of front frame 23, whereby air flow 28a can be improved.

[0019] By selecting suitable positions for screw holes, etc., plate 24 can easily be made top-bottom or left-right symmetrical.

Benefits of the invention

[0020] As has been explained above, in a PDP display apparatus fitted with an optical filter, by making the attachment fittings of the PDP unit into integral attachment fittings which are provided behind the PDP unit, not only is the number of components decreased and mounting of the PDP unit made easier, but in addition, PDP heat dissipation is improved, the mechanical strength of the mounting is increased, and the reliability of the display apparatus as a whole is improved.

Brief Description of the Drawings

FIG. 1(A) is a side view (in section), and FIG. 1(B) is a rear view, of a corner portion of a first embodiment of a PDP unit mounting structure according to the present invention. FIG. 2(A) is a side view (in section), and FIG. 2(B) is a rear view, of a corner portion of another embodiment of a PDP unit mounting structure according to the present invention. FIG. 3(A) is a side view (in section), and FIG. 3(B) is a rear view, of a corner portion of an example of a conventional PDP unit mounting structure.

Explanation of referencing numerals

1.....	PDP unit	28.....	gap
2.....	optical filter	28a.....	air flow
3.....	front frame	29.....	fan
4.....	plate	31.....	PDP unit
5, 6, 7.....	screws	32.....	optical filter
8.....	gap	33.....	front frame
21.....	PDP unit	34.....	plate
22.....	optical filter	35.....	screw
23.....	front frame	36.....	attachment fitting
24.....	plate	37, 38.....	screws
25, 26, 27.....	screws		

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FIG. 1

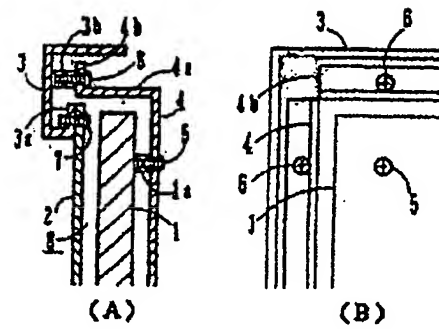


FIG. 2

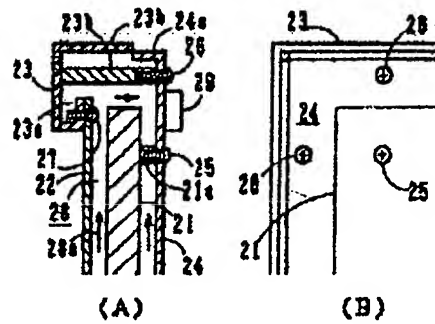
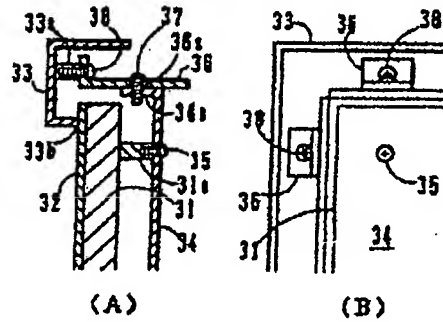


FIG. 3



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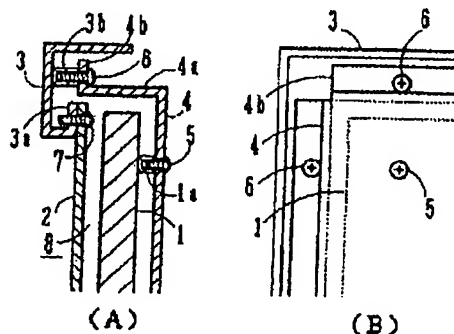
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(54) 【発明の名称】 PDPユニット取付構造

(57) 【要約】

【課題】 部品点数が少なく、取り付けの際の位置調整が不要で簡単に取り付けられるPDPユニットの取付構造を提供する。

【解決手段】 PDPユニット1の背面に設けたボス1aを板体4にビス5で固着する。板体4の周辺部は板体4の板面に対して略直角に折り曲げて折曲部4aとし、その先端をさらに折り曲げて略板面と平行にしたネジ止め部4bを設ける。ネジ止め部4bを前枠3の内側に立てたボス3bにビス6で固着する。半透明のアクリル等からなる光学フィルタ2の周辺部にはビス穴を開け、前枠の内側の折曲部3aにビス止めする。



【特許請求の範囲】

【請求項1】 PDP（プラズマディスプレイパネル）ユニット及び同PDPユニットの前面に取り付けた光学フィルタを前枠及び後板からなる筐体に収納して構成するPDP表示装置において、前記PDPユニットの背面に設けたボスにビス止めする穴を有する板体と、同板体の周辺を板面に対して略直角にPDPユニット側に折り曲げた折曲部と、同折曲部の先端をさらに前記板面に略平行に折り曲げたネジ止め部を設け、同ネジ止め部を前記前枠の内側にネジ止めすることでPDPユニットを筐体に固定し、前記光学フィルタは、同光学フィルタの周辺部に設けた穴により前枠にビス止めする等により固定することを特徴としたPDPユニット取付構造。

【請求項2】 PDPユニット及び同PDPユニットの前面に取り付けた光学フィルタを前枠及び後板からなる筐体に収納して構成するPDP表示装置において、前記PDPユニットの背面に設けたボスにビス止めする穴を有する板体と、同板体の周辺を前記PDPユニットの周辺の外側まで広げ、同周辺部を前記前枠の内側に立てた前記周辺部まで延びるボスにネジ止めすることでPDPユニットを筐体に固定し、前記光学フィルタは、同光学フィルタの周辺部に設けた穴により前枠にビス止めする等により筐体に固定することを特徴としたPDPユニット取付構造。

【請求項3】 前記ボスにネジ止めた周辺部の先端を前記板面に対して略直角に折り曲げることを特徴とした請求項2記載のPDPユニット取付構造。

【請求項4】 光学フィルタとPDPユニットの前面の間には、空気の流通用の間隙を設けることを特徴とした請求項1、請求項2又は請求項3記載のPDPユニット取付構造。

【請求項5】 前記間隙は略10mmとすることを特徴とした請求項4記載のPDPユニット取付構造。

【請求項6】 板体は、その中心線に対して上下及び左右に対称とすることを特徴とした請求項1又は請求項2記載のPDPユニット取付構造。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は、テレビ映像等を表示するPDP表示装置に適用される取り付けの簡単なPDPユニット取付構造に関する。

【0002】

【従来の技術】 図3は、従来のPDPユニットの取付構造の1例の概部の（A）側面図（断面）、（B）背面図である。前面に光学フィルタ32を周辺部を接着等で止めたPDPユニット31の背面に設けたボス31aを板体34にビス35で止める。板体34の周辺部には板体34の板面に対して略直角に折り曲げた折曲部34aを設け、前枠33に止めた取付金具36にビス37で固定する。取付金具36は、前枠33の内側に立てたボス3

3aにビス38でネジ止めしてある。板体34を取付金具36にビス止めする部分の取付金具のビス穴36aは小判型としてあり、PDPユニットを付けた板体34を取付金具36にビス止めするとき光学フィルタ32の前面が前枠33の端部33bに合致するように調整している。従って、この場合PDPユニットの厚みの誤差等は、小判型の穴36aで吸収することができ、光学フィルタ32と前枠33をぴったり合わせることができる。しかし、この取付構造では、複数個の取付金具36、36、・・・が必要となり、部品点数が多くなり取付が煩雑となり、また取り付けの際の位置調整も難しい等の問題がある。

【0003】

【発明が解決しようとする課題】 本発明は上記問題点に鑑みなされたもので、部品点数が少なく、取り付けの際の位置調整が不要で簡単に取り付けられるPDPユニットの取付構造を提供することにある。

【0004】

【課題を解決するための手段】 PDPユニットの背面に設けたボスにビス止めする穴を有する板体と、同板体の周辺を板面に対して略直角にPDPユニット側に折り曲げた折曲部と、同折曲部の先端をさらに前記板面に略平行に折り曲げたネジ止め部を設け、同ネジ止め部を前記前枠の内側にネジ止めすることでPDPユニットを筐体に固定し、光学フィルタは周辺部に設けた穴により前枠にビス止めする等により固定する。

【0005】 PDPユニットの背面に設けたボスにビス止めする穴を有する板体と、同板体の周辺を前記PDPユニットの周辺の外側まで広げ、同周辺部を前記前枠の内側に立てた前記周辺部まで延びるボスにネジ止めし、光学フィルタは周辺部に設けた穴により前枠にビス止めする等により固定する。

【0006】 ボスにネジ止めた周辺部の先端を前記板面に対して略直角に折り曲げる。

【0007】 光学フィルタとPDPユニットの前面の間には、空気の流通用の間隙を設ける。また、間隙は略10mmとする。

【0008】 板体は、その中心線に対して上下及び左右に対称とする。

【0009】

【作用】 PDPユニットの背面に設けたボスにビス止めする穴を有する板体と、同板体の周辺を板面に対して略直角にPDPユニット側に折り曲げた折曲部と、同折曲部の先端をさらに前記板面に略平行に折り曲げたネジ止め部を設け、同ネジ止め部を前記前枠の内側にネジ止めすることでPDPユニットを筐体に固定し、光学フィルタは周辺部に設けた穴により前枠にビス止めする等により固定することで、PDPユニットの取付金具は一体化され、部品点数が減少する。

【0010】 PDPユニットの背面に設けたボスにビス

止める穴を有する板体と、同板体の周辺を前記PDPユニットの周辺の外側まで広げ、同周辺部を前記前枠の内側に立てた前記周辺部まで延びるボスにネジ止めし、光学フィルタは周辺部に設けた穴により前枠にビス止める等により固定することで、取付金具の構造が単純化される。

【0011】ボスにネジ止めした周辺部の先端を前記板面に対して略直角に折り曲げることで、取付金具の面内の機械強度が増加するので板厚を薄くできる。

【0012】光学フィルタとPDPユニットの前面の間には、空気の流通用の間隙を設けることで、PDPが発熱する熱が効率良く放熱できる。また、間隙は略10mmとすることで、放熱効率が略最適化できる。

【0013】板体は、その中心線に対して上下及び左右に対称とすることで、取付に際してPDPユニットと板体との上下あるいは左右の向きが任意となる。

【0014】

【実施例】以下、本発明によるPDPユニット取付構造について、図を用いて詳細に説明する。図1は、本発明によるPDPユニット取付構造の1実施例の隔部の

(A)側面図(断面)、(B)背面図である。PDPユニット1の背面に設けたボス1aを板体4にビス5で固着する。板体4の周辺部は板体4の板面に対して略直角に折り曲げて折曲部4aとし、その先端をさらに折り曲げて略板面と平行にしたネジ止め部4bを設ける。ネジ止め部4bを前枠3の内側に立てたボス3bにビス6で固着する。半透明の亚克力等からなる光学フィルタ2の周辺部にはビス穴を開け、前枠の内側の折曲部3aにビス止める。

【0015】板体4の折曲部4aの長さやPDPユニット1のボス1aの長さ等を変えることで、光学フィルタ2とPDPユニット1の前面との間隙8を適当に調整することができ、これを略10mmとすることもできる。間隙8を適当に開けることによって、PDPによる温度上昇から自然対流で、または、別途取り付け付けた放熱ファン(図示せず)でこの間隙内の空気が移動して、PDPの発熱を有効におさえることができる。

【0016】板体4はネジ穴等の位置を適切にとることで、容易に上下方向、又は左右方向に対称とすることができる。

【0017】図2は、本発明によるPDPユニット取付構造の別の実施例の隔部の(A)側面図(断面)、

(B)背面図である。PDPユニット21の背面に設けたボス21aを板体24にビス25で固着する。板体24の周辺部は板体24の板面に対して略直角に折り曲げて折曲部24aとすることができる。板体24の周辺部は、同周辺部まで延びる前枠23の内側に立てたボス23bにビス26で固着する。半透明の亚克力等からなる光学フィルタ22の周辺部にはビス穴を開け、前枠の内側の折曲部23aにビス27で止める。

【0018】前枠23の内側に立てたボス23bの長さやPDPユニットのボス1aの長さ等を変えることで、光学フィルタ22とPDPユニット21の前面との間隙28を適当に調整することができ、これを略10mmとすることもできる。間隙28を適当に開けることによって、PDPによる温度上昇から自然対流で、または、別途取り付け付けた放熱ファン29でこの間隙内の空気が流れ28aとなって移動して、PDPの発熱を有効に押さえることができる。この場合、板体24の折曲部24aを前枠23の側面23bに咬合するまで延ばして、空気の流れ28aを良くすることもできる。

【0019】板体24はネジ穴等の位置を適切にとることで、容易に上下方向、又は左右方向に対称とすることができる。

【0020】

【発明の効果】以上説明したように、光学フィルタ付きPDP表示装置で、PDPユニットの取付金具をPDPユニットの背面に設けた一体型の取付金具とすることで、部品点数が減りPDPユニットの取付が容易となるばかりでなく、PDPの放熱効果も良くなり、取付の機械強度も増大して表示装置全体の信頼性が上がることもなる。

【図面の簡単な説明】

【図1】本発明によるPDPユニット取付構造の1実施例の隔部の(A)側面図(断面)、(B)背面図である。

【図2】本発明によるPDPユニット取付構造の別の実施例の隔部の(A)側面図(断面)、(B)背面図である。

【図3】従来のPDPユニットの取付構造の1例の隔部の(A)側面図(断面)、(B)背面図である。

【符号の説明】

- 1 PDPユニット
- 2 光学フィルタ
- 3 前枠
- 4 板体
- 5 ビス
- 6 ビス
- 7 ビス
- 8 間隙
- 21 PDPユニット
- 22 光学フィルタ
- 23 前枠
- 24 板体
- 25 ビス
- 26 ビス
- 27 ビス
- 28 間隙
- 28a 空気の流れ
- 29 ファン

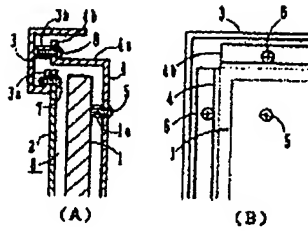
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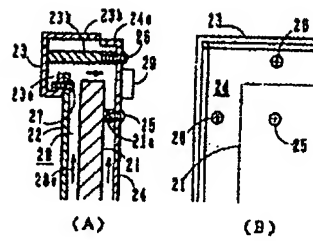
31 PDPユニット
32 光学フィルタ
33 前枠
34 板体

35 ビス
36 取付金具
37 ビス
38 ビス

【図1】



【図2】



【図3】

